

**WHAT IS CLAIMED IS:**

1. A therapeutic composition comprising:  
a polypeptide capable of binding to at least one of  $\alpha 6\beta 1$  integrin receptor and  $\alpha 6\beta 4$  integrin receptor, wherein the polypeptide comprises the G domain of the laminin-5  $\alpha 3$  chain or a fragment, mutant, homolog, ortholog, analog, or allele thereof; and  
a pharmaceutically compatible carrier.
2. The therapeutic composition of claim 1, wherein the polypeptide comprises SEQ ID NO:2 or a fragment, mutant, homolog, ortholog, analog, or allele thereof.
3. The therapeutic composition of claim 1, wherein the polypeptide comprises at least about 70% sequence identity with SEQ ID NO:2.
4. The therapeutic composition of claim 1, wherein the polypeptide comprises SEQ ID NO:4 or a fragment, mutant, homolog, ortholog, analog, or allele thereof.
5. The therapeutic composition of claim 1, wherein the polypeptide comprises at least about 70% sequence identity with SEQ ID NO:4.
6. The therapeutic composition of claim 1, wherein the polypeptide comprises SEQ ID NO:6 or a fragment, mutant, homolog, ortholog, analog, or allele thereof.
7. The therapeutic composition of claim 1, wherein the polypeptide comprises at least about 70% sequence identity with SEQ ID NO:6.
8. The therapeutic composition of claim 1, wherein the composition is a solid.
9. The therapeutic composition of claim 8, wherein the pharmaceutically compatible carrier comprises a gelatin.
10. The therapeutic composition of claim 1, wherein the pharmaceutically compatible carrier comprises water.
11. The therapeutic composition of claim 1, wherein the pharmaceutically compatible carrier comprises an oil.

12. The therapeutic composition of claim 1, wherein the pharmaceutically compatible carrier comprises a sustained release matrix.

13. The therapeutic composition of claim 1, further comprising one or more chemotherapeutic agents for treatment of disease.

5 14. The therapeutic composition of claim 1, further comprising one or more radioactive agents for treatment of cancer.

15. A therapeutic agent comprising:

a fused or chimeric polypeptide comprising

10 a first component comprising a polypeptide capable of binding to at least one of  $\alpha 6\beta 1$  integrin receptor and  $\alpha 6\beta 4$  integrin receptor, wherein the polypeptide comprises the G domain of the laminin-5  $\alpha 3$  chain or a fragment, mutant, homolog, ortholog, analog, or allele thereof, and

a second component chemically bound to said first component, wherein said second component comprises an agent for use in the destruction or  
15 neutralization of a pathogen comprising at least one of  $\alpha 6\beta 1$  integrin receptors and  $\alpha 6\beta 4$  integrin receptors on the surface of the pathogen.

16. The therapeutic agent of claim 15, wherein the second component is a polypeptide.

20 17. The therapeutic agent of claim 15, wherein the second component is a non-protein agent.

18. The therapeutic agent of claim 15, wherein the second component is selected from the group consisting of IL-2, IL-3 IL-15, IL-12, IFN- $\gamma$ , GM-CSF, CD40, CD40 ligand (CD40L), C3 Complement components, CD80, CD86, FAS, FAS ligand (FASL), superantigens, muramyl dipeptide (MDP), lipopolysaccharide (LPS), or  
25 mannose

19. The therapeutic composition of claim 15, wherein the first component comprises at least about 70% sequence identity with SEQ ID NO:2.

20. The therapeutic composition of claim 15, wherein the first component comprises at least about 70% sequence identity with SEQ ID NO:4.

21. The therapeutic composition of claim 15, wherein the first component comprises at least about 70% sequence identity with SEQ ID NO:6.

22. An isolated polynucleotide comprising:

5 a first nucleotide sequence encoding a polypeptide capable of binding to at least one of  $\alpha 6\beta 1$  integrin receptor and  $\alpha 6\beta 4$  integrin receptor, wherein the nucleotide encodes for a polypeptide comprising the G domain of the laminin-5  $\alpha 3$  chain or a fragment, mutant, homolog, ortholog, analog, or allele thereof; and a second nucleotide sequence encoding a polypeptide agent for use in the destruction or neutralization of a pathogen comprising at least one of  $\alpha 6\beta 1$   
10 integrin receptors and  $\alpha 6\beta 4$  integrin receptors on the surface of the pathogen.

23. The isolated polynucleotide of claim 22, wherein the first nucleotide sequence has about 70% or greater sequence identity with SEQ ID NO: 1.

24. The isolated polynucleotide of claim 22, wherein the first nucleotide sequence has about 70% or greater sequence identity with SEQ ID NO: 3.

15 25. The isolated polynucleotide of claim 22, wherein the first nucleotide sequence has about 70% or greater sequence identity with SEQ ID NO: 5.

26. The isolated polynucleotide of claim 22, wherein the second nucleotide sequence encodes cytokines, whole antibodies or fractions thereof, cell-surface receptors, or ligands for cell-surface receptors.

20 27. The isolated polynucleotide of claim 22, wherein the second nucleotide sequence encodes a polypeptide selected from the group consisting of IL-2, IL-3, KL-15, IL-12, IFN- $\gamma$ , GM-CSF, CD40, CD40L, C3 complement components CD80, CD86, FAS, and FASL.

25 28. The isolated polynucleotide of claim 22, wherein the polynucleotide is operably linked to an expression control sequence

29. A host cell transformed with the polynucleotide of claim 22.

30. The host cell of claim 29, wherein the host cell is selected from the group consisting of bacterial, yeast, mammalian, insect, or plant cells.

31. A method for treating a disease comprising:

providing a therapeutic agent comprising a polypeptide capable of binding to at least one of  $\alpha 6\beta 1$  integrin receptor and  $\alpha 6\beta 4$  integrin receptor, wherein the nucleotide encodes for a polypeptide comprising the G domain of the laminin-5  $\alpha 3$  chain or a fragment, mutant, homolog, ortholog, analog, or allele thereof;

5                    contacting a pathogen comprising at least one of  $\alpha 6\beta 1$  integrin receptors and  $\alpha 6\beta 4$  integrin receptors on the surface of the pathogen with the therapeutic agent; and

                    binding the therapeutic agent to the pathogen.

10                  32.     The method of claim 31, wherein the method is carried out *in vivo*, the pathogen being contacted with the therapeutic agent via a pharmaceutically acceptable administration system, wherein the binding of the therapeutic agent to the pathogen masks the  $\alpha 6\beta 1$  integrin receptors or the  $\alpha 6\beta 4$  integrin receptors on the surface of the pathogen and prevents the pathogen from binding to the extracellular matrix of a host.

15                  33.     The method of claim 32, wherein the pharmaceutically acceptable administration system is a parenteral system.

                    34.     The method of claim 32, wherein the pharmaceutically acceptable administration system is an oral administration system.

20                  35.     The method of claim 32, wherein the pharmaceutically acceptable administration system comprises a sustained release system.

                    36.     The method of claim 30, wherein the therapeutic agent further comprises a second component chemically bound to the polypeptide, the second component comprising an agent for use in the destruction or neutralization of the pathogen.

25                  37.     A method for treating breast cancer comprising:

                    providing a therapeutic agent comprising a polypeptide capable of binding to at least one of  $\alpha 6\beta 1$  integrin receptor and  $\alpha 6\beta 4$  integrin receptor, the polypeptide comprising the G domain of the laminin-5  $\alpha 3$  chain or a fragment, mutant, homolog, ortholog, analog, or allele thereof;

contacting a breast cancer cell comprising at least one of  $\alpha 6\beta 1$  integrin receptors and  $\alpha 6\beta 4$  integrin receptors on the surface of the breast cancer cell with the therapeutic agent; and

binding the therapeutic agent to the breast cancer cell.

5           38.    The method of claim 37, wherein the method is carried out *in vivo*, the breast cancer cell being contacted with the therapeutic agent via a pharmaceutically acceptable administration system, wherein the binding of the therapeutic agent to the breast cancer cell masks the  $\alpha 6\beta 1$  integrin receptors or the  $\alpha 6\beta 4$  integrin receptors on the surface of the breast cancer cell and prevents the breast cancer  
10 cell from binding to the extracellular matrix of a host.

          39.    The method of claim 38, wherein the pharmaceutically acceptable administration system is a parenteral system.

          40.    The method of claim 38, wherein the pharmaceutically acceptable administration system is an oral administration system.

15           41.    The method of claim 38, wherein the pharmaceutically acceptable administration system comprises a sustained release system.

          42.    The method of claim 37, wherein the therapeutic agent further comprises a second component bound to the polypeptide, the second component comprising an agent for use in the destruction or neutralization of the breast cancer  
20 cell.